



Northern Great Plains Network

Inventory and Monitoring Monthly Report

March 2005



Phase I of Vital Signs Plan: Phase I of the Vital Signs monitoring plan was submitted to the Washington Office in late March. Thanks to the Technical Committee and others who contributed to the document. The next milestone is our Network-wide meeting in mid-September where we will select our Vital Signs (i.e., what we will monitor).

Inventories: We have received final reports for all of the biological inventories with the exception of the reptile and amphibian work at the Missouri NRR and the Niobrara NSR (that report is past due so I'll keep pestering the authors). I&M Program staff are busy processing the reports, including entering the data into NPSpecies, NatureBib, and converting location data into a GIS format. Copies of all the reports can be downloaded from: <http://www1.nature.nps.gov/im/units/ngpn/Pages/inventory.htm>.

Northern Great Plains Air Quality Report: The Network recently received an air quality assessment prepared by David Pohlman (MWR Air Quality Specialist) and Tonnie Maniero (NER Air Quality Ecological Effects Coordinator). The highlights are:

- Air quality is generally good in the region; however, existing data shows that nitrogen deposition is increasing and visibility is decreasing.
- The authors recommend that the effects of sulfur dioxide and nitrogen oxide be tracked with visibility or water chemistry monitoring. It is unlikely that these compounds will directly injure foliage in Network parks.
- Nitrogen deposition levels could increase due to the expansion of coal bed methane development west of the Network. Grassland plant composition and productivity are sensitive to changes in soil nitrogen. Therefore, the authors recommend incorporating nitrogen deposition effects into the vegetation monitoring program, perhaps by using controlled nitrogen fertilization studies.
- The “most poorly monitored parks” in the Network in terms of existing air quality monitoring stations are Agate Fossil Beds NM, Fort Laramie NHS, Knife River Indian Villages NHS, Missouri NRR, Niobrara NSR, and Scotts Bluff NM.
- The parks listed above may have the highest ambient ozone levels, hence, the authors recommend a portable ozone monitor to track conditions at these parks.
- The authors state that for parks with scenic vistas, but no visibility monitoring equipment, digital cameras are a low cost and effective option (although they are not adequate for regulatory purposes).

The full report is at: <http://www1.nature.nps.gov/im/units/ngpn/Pages/monitoring.htm>.

Personnel Issues: I'm happy to announce that Carmen Thomson—currently the Natural Resource Specialist at the Niobrara NSR and the park's I&M Technical Committee representative—has been selected as the new Midwest Region I&M Coordinator, effective April 18. In addition, Ted Benson—Technical Committee representative from Fort Laramie NHS—has accepted a position at Pecos NHP.

Trends and Approaches in Monitoring: The most recent issue of *Conservation Biology* has a comprehensive article about monitoring by Caroline Stem et al.. The authors state that “*good management goes beyond implementation—effective management is integrally linked to well-designed monitoring and evaluation systems.*” They categorize all monitoring into four broad purposes, two of which are relevant to the I&M Program: *status assessment* (i.e., the condition of resources at a particular point in time) and *effectiveness measurements* (i.e., are management actions having the intended effect). The authors list a variety of approaches for monitoring including:

- * population monitoring (the conventional systematic counting of plants and animals; expensive, but can quantitatively document spatial and temporal trends)
- * rapid assessments (a quick and flexible approach that can be targeted to a particular resource; however, not always statistically robust)
- * scorecards (great for communication; however, often subjective and can over simplify conditions)
- * adaptive management (a systematic approach that can document the effectiveness of management actions; however, can be expensive and/or a long process)

As we approach selecting our Vital Signs we'll need to be cognizant of these and other general approaches to monitoring. More information on the paper can be found at http://fosonline.org/Site_Page.cfm?PageID=18.